

Amendments To The Claims:

1. (Amended) A radiation curable adhesive composition comprising:

- a) an α,β -olefinically unsaturated ether monomer component ~~consisting of~~
comprising one or more compounds having the formula:



where R is an n-valent ~~carbon-linked~~ organic group linked by a carbon atom to the oxygen atom to which R is attached, R¹ is ~~H or~~ a monovalent ~~carbon-linked~~ organic group linked by a carbon atom to the carbon atom to which R¹ is attached, and n has a value of 1 or more,

- b) an elastomeric polymer ~~having a tensile strength at break of greater than 1500 psi (10342 kPa), and an elongation at break of greater than 100%, and~~
c) a cationic photoinitiator.

2. (Amended) An adhesive composition as in claim 1 wherein in ~~monomer component a),~~
~~formula~~ formula (I), n is 1 to 100.

3. (Amended) An adhesive composition as in claim 1 wherein in ~~monomer component a),~~
~~formula~~ formula (I), n is 1-6.

4. (Previously presented) An adhesive composition as in claim 1 wherein R and R' are selected from the group consisting of 1- 40 carbon aromatic or aliphatic hydrocarbon groups, polyethers, cycloethers, residues of hydroxyl terminated urethane oligomers, residues of hydroxyl terminated polyesters, and mixtures thereof.

5. (Previously presented) An adhesive composition as in claim 1 wherein the monomer component a) is employed in the composition in an amount of from about 20% to about 98% by weight of the composition.

6. (Amended) An adhesive composition as in claim 5 wherein the monomer component a) is includes at least one member selected from the group consisting of ~~butyl vinyl ether, hydroxy~~

~~butyl vinyl ether, cyclohexyl vinyl ether, phenoxy vinyl ether, 2-ethylhexyl vinyl ether, lauryl vinyl ether, cetyl vinyl ether, and octadecyl vinyl ether; divinyl ethers of hexanediol, cyclohexane dimethanol, triethylene glycol, bisphenol A, alkoxyated bisphenol A, and tetraethylene glycol; di- and tri- vinyl ethers of glycerol or trimethylolpropane; di-, tri- and tetra- vinyl ethers of pentaerythritol; 1,2-dipropenoxyethane, 1,4-dipropenoxybutane, 1,6-propenoxyhexane, 1,3-dipropenoxypropane, 1,4-cyclohexanedimethanol dipropenyl ether, 1,4-cyclohexane dipropenyl ether, 1,2-dipropenoxypropane, 1,10-dipropenoxydecane, 1,8-dipropenoxyoctane, 1,2,3-tripropenoxypropane, 1,2,3,4-tetrapropenoxybutane, sorbitol hexapropenyl ether, trimethylolpropane tripropenyl ether, pentaerythritol tetrapropenyl ether, 1,2-dipropenoxycyclopentane, 1,3-dipropenoxyperfluoropropane, diethyleneglycol dipropenyl ether, tetraethyleneglycol dipropenyl ether, and 3,4-dipropenoxytetrahydrofuran; and mixtures thereof~~
3,4-dipropenoxytetrahydrofuran.

7. (Previously presented) An adhesive composition as in claim 1 wherein the elastomeric polymer component b) is selected from the group consisting of acrylic rubbers, butadiene/acrylonitrile rubber, styrene/butadiene rubber, buna rubber, polyisobutylene, polyisoprene, natural rubber, polyurethane rubbers, ethylene-vinyl acetate polymers, fluorinated rubbers, isoprene-acrylonitrile polymers, chlorosulfonated polyethylenes, homopolymers of polyvinyl acetate, and mixtures thereof.

8. (Amended) An adhesive composition as in claim 7 wherein the elastomeric polymer component b) is an acrylic rubber selected from the group consisting of (i) homopolymers of alkyl esters of acrylic acid, (ii) copolymers of another polymerizable monomer with an alkyl ester of acrylic acid or with an alkoxy ester of acrylic acid, ~~(iv) (iii)~~ copolymers of alkyl esters of acrylic acid with each other, ~~(v) (iv)~~ copolymers of alkoxy esters of acrylic acid with each other, and ~~(vi) (v)~~ mixtures of any of the above ~~(i)-(v)~~ (i)-(iv).

9. (Previously presented) An adhesive composition as in claim 1 wherein the elastomeric polymer component b) has an average molecular weight of greater than 5,000.

10. (Previously presented) An adhesive composition as in claim 9 wherein the elastomeric polymer component b) has an average molecular weight of more than about 100,000, a Mooney viscosity of between 20 and about 60, and a glass transition temperature of 15° C or less.

11. (Amended) An adhesive composition as in claim 1 wherein the elastomeric polymer component b) is an A-B-A block copolymer wherein the A block is polymerized segment of styrene, alpha-methyl styrene, t-butyl styrene, or other ring alkylated styrene, acrylonitrile, methyl methacrylate, or a mixture of some or all of the above and the B block is an elastomeric segment derived from a conjugated diene or copolymer thereof or is an ethylene-propylene monomer polymer.

12. (Amended) An adhesive composition ~~as in claim 1~~ comprising:

a) an α,β -olefinically unsaturated ether monomer component consisting of one or more compounds having the formula:



where R is an n-valent organic group linked by a carbon atom to the oxygen atom to which R attached, R¹ is H or an n-valent organic group linked by a carbon atom to the carbon atom to which R¹ is attached, and n has a value of 1 or more,

b) an elastomeric polymer having a tensile strength at break of greater than 1500 psi (10342 kPa), and an elongation at break of greater than 100%, and

c) a cationic photoinitiator.

wherein the elastomeric polymer component b) is a millable polyurethane rubber.

13. (Previously presented) An adhesive composition as in claim 1 wherein the elastomeric polymer component b) is present in the composition in an amount of 3 to about 50 percent by weight.

14. (Amended) An adhesive composition as in claim 1 wherein the cationic photoinitiator component c) comprises an onium salt represented by the general formula:



where R^2 is an aromatic radical or a mixture thereof, A^+ is selected from the group consisting of iodonium cation mono-substituted with C_1 to C_{20} alkyl or aryl optionally substituted with C_1 to C_{20} alkyl or alkoxy and sulfonium cation di-substituted with C_1 to C_{20} alkyl or aryl optionally substituted with C_1 to C_{20} alkyl or alkoxy or a mixture thereof and X^- is a non-basic, non-nucleophilic anion, or an η^5, η^6 -iron arene ~~salt~~ complex salt catalyst.

15. (Amended) An adhesive composition as in claim 14 wherein R^2 is aryl, alkaryl, or aralkyl, any of which may be optionally substituted with a linear, branched or cyclic C_8 to C_{20} radical of alkyl, alkylene, ~~alkoxy~~ alkoxy, alkyleneoxy, a nitrogen, oxygen or sulfur heterocyclic radical of 4 to 6 carbon atoms in the ring and X^- is SbF_6^- , AsF_6^- , PF_6^- , BF_4^- , ClO_4^- , or $CF_3SO_3^-$.

16. (Previously presented) An adhesive composition as in claim 1 wherein the cationic photoinitiator component c) is selected from the group consisting of diaryliodonium, triarylsulfonium, diaryliodosonium, triarylsulfoxonium, dialkylphenacylsulfonium, and alkylhydroxyphenylsulfonium salts and mixtures thereof.

17. (Previously presented) An adhesive composition as in claim 1 wherein the cationic photoinitiator component c) is present in the composition in an amount of from about 0.01% to about 20% by weight.

18. (Amended) ~~An adhesive composition as in claim 1 further comprising one or more members of the group consisting of non-elastomeric polymers, inorganic fillers, storage stabilizers, viscosity modifiers, surface wetting property modifiers and adhesion promoters.~~

19. (Previously presented) An adhesive composition as in claim 1 wherein the elastomeric polymer component b) has a tensile strength at break of greater than 2000 psi (13790 kPa) and an elongation at break of greater than 200%.

20. (Previously presented) An adhesive composition as in claim 19 wherein said elastomeric polymeric component is a block copolymer which includes at least one block segment having a Tg of -20°C or less.

21. (Previously presented) An adhesive composition as in claim 1 wherein R' is H or C₁₋₁₀ alkyl.

22. (Previously presented) An adhesive composition as in claim 1 wherein R' is H or methyl.

23. (Previously presented) A method of bonding comprising

- A) applying a composition as in claim 1 to a substrate,
- B) joining a second substrate, at least one of the substrates being transmissive to energy effective to activate the photoinitiator, and
- C) transmitting energy effective to activate the photoinitiator through said transmissive substrate to the composition to effect cure of the composition.

24. (Amended) A method as in claim 23 wherein said energy effective to activate the photoinitiator is heat, e-beam or electromagnetic energy in the ~~IR~~ infrared, visible, ~~UV~~ ultraviolet or x-ray spectrum.

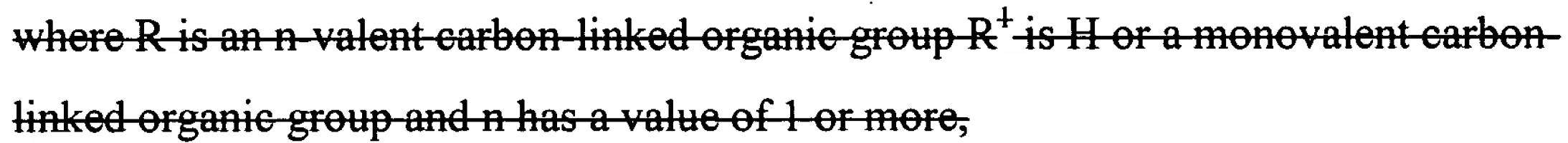
25 (Amended) A method as in claim 24 wherein said energy effective to activate the photoinitiator is electromagnetic energy in the infrared ~~IR~~, visible or ~~UV~~ ultraviolet spectrum.

26. (Previously presented) A bonded assembly produced by the method of claim 23.

27. (Previously presented) An assembly comprising a pair of substrates bonded by a cured adhesive formulation wherein the adhesive formulation is a composition as in claim 1.

28. (Amended) A polymeric reaction product obtained by curing a composition as in

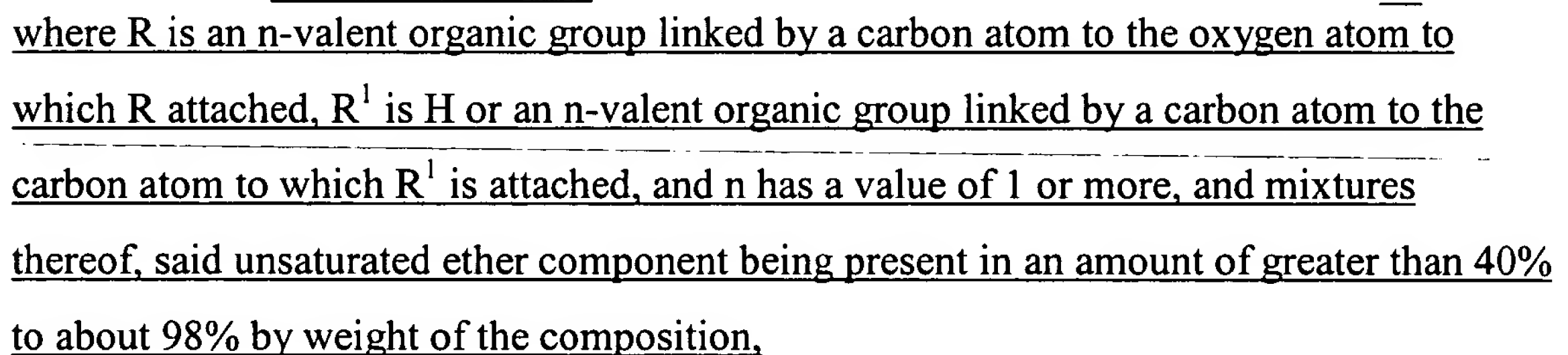
~~a) — an α,β olefinically unsaturated ether monomer component consisting of one or more compounds having the formula:~~



~~c) a cationic photoinitiator.~~

30. (New) An adhesive composition as in claim 1 wherein the elastomeric polymer b) has a tensile strength at break of greater than 1500 psi (10342 kPa), and an elongation at break of greater than 100%.

a) an α,β -olefinically unsaturated ether monomer component selected from the group consisting of compounds having the formula:



b) an elastomeric polymer component having a tensile strength at break of greater than 1500 psi (10342 kPa), and an elongation at break of greater than 100%, said elastomeric polymer component being selected from the group consisting of acrylic rubbers, butadiene/acrylonitrile rubber, styrene/butadiene rubber, buna rubber,

polyisobutylene, polyisoprene, natural rubber, polyurethane rubbers, ethylene-vinyl acetate polymers, fluorinated rubbers, isoprene-acrylonitrile polymers, chlorosulfonated polyethylenes, homopolymers of polyvinyl acetate, and mixtures thereof, and
c) a cationic photoinitiator.

32. (New) An adhesive composition as in claim 31 wherein in formula (I), n is 1 to 100.

33. (New) An adhesive composition as in claim 31 wherein in formula (I), n is 1-6.

34. (New) An adhesive composition as in claim 31 wherein R and R' are selected from the group consisting of 1- 40 carbon aromatic or aliphatic hydrocarbon groups, polyethers, cycloethers, residues of hydroxyl terminated urethane oligomers, residues of hydroxyl terminated polyesters, and mixtures thereof.

35. (New) An adhesive composition as in claim 1 wherein component a) is employed in the composition in an amount of from about 45% to about 98% by weight of the composition.

36. (New) An adhesive composition as in claim 35 wherein component a) includes at least one member selected from the group consisting of butyl vinyl ether, hydroxy butyl vinyl ether, cyclohexyl vinyl ether, phenoxy vinyl ether, 2-ethylhexyl vinyl ether, lauryl vinyl ether, cetyl vinyl ether, octadecyl vinyl ether, divinyl ether of hexanediol, divinyl ether of cyclohexane dimethanol, divinyl ether of triethylene glycol, divinyl ether of bisphenol A, divinyl ether of alkoxyated bisphenol A, divinyl ether of tetraethylene glycol, divinyl ether of glycerol, trivinyl ether of glycerol, divinyl ether of trimethylolpropane, trivinyl ether of trimethylolpropane, divinyl ether of pentaerythritol, trivinyl ether of pentaerythritol, tetravinyl ether of pentaerythritol, 1,2-dipropenoxyethane, 1,4-dipropenoxybutane, 1,6-propenoxyhexane, 1,3-dipropenoxypropane, 1,4-cyclohexanedimethanol dipropenyl ether, 1,4-cyclohexane dipropenyl ether, 1,2-dipropenoxypropane, 1,10-dipropenoxydecane, 1,8-dipropenoxyoctane, 1,2,3-tripropenoxypropane, 1,2,3,4-tetrapropenoxybutane, sorbitol hexapropenyl ether, trimethylolpropane tripropenyl ether, pentaerythritol tetrapropenyl ether, 1,2-

dipropenoxycyclopentane, 1,3-dipropenoxyperfluoropropane, diethyleneglycol dipropenyl ether, tetraethyleneglycol dipropenyl ether, and 3,4-dipropenoxytetrahydrofuran.

37. (New) An adhesive composition as in claim 31 wherein the elastomeric polymer component b) is an acrylic rubber selected from the group consisting of (i) homopolymers of alkyl esters of acrylic acid, (ii) copolymers of another polymerizable monomer with an alkyl ester of acrylic acid or with an alkoxy ester of acrylic acid, (iii) copolymers of alkyl esters of acrylic acid with each other, (iv) copolymers of alkoxy esters of acrylic acid with each other, and (v) mixtures of any of the above (i)-(iv).

38. (New) An adhesive composition as in claim 31 wherein the elastomeric polymer component b) has an average molecular weight of more than about 100,000.

39. (New) An adhesive composition as in claim 31 wherein the elastomeric polymer component b) is present in the composition in an amount of 3 to about 50 percent by weight.

40. (New) A radiation curable composition comprising:
a) an α,β -olefinically unsaturated ether monomer,
b) at least one member of the group consisting of millable polyurethane elastomers, fluorinated rubbers, isoprene-acrylonitrile polymers and chlorosulfonated polyethylenes, and
c) a cationic photoinitiator.